

WHAT IS CLAIMED:

1. A vehicle, comprising:
an energy producing and storage system including
5 first and second portions cooperating in a nesting
relationship, thereby minimizing vehicle space usage; and
a vehicle body including a floor having a first
concavity formed therein for receiving a third portion of
the system from outside the vehicle, the first concavity
10 being configured to prevent at least some of the third
portion from extending beyond the vehicle body, and to
minimize use of vehicle occupant space.
2. The vehicle of claim 1, further comprising at
15 least one transverse support disposed on an inside of the
floor along a length of the first concavity, thereby adding
strength to the vehicle body in a transverse direction, the
at least one transverse support being configured to provide
an attachment structure for a corresponding vehicle front
20 seat.
3. The vehicle of claim 1, wherein the system
includes a fuel cell system, and wherein the first portion
includes a fuel tank, the second portion includes a storage
25 device for storing and providing electricity, and the third
portion includes a fuel cell stack.
4. The vehicle of claim 3, further comprising a
pair of longitudinal supports, each of the longitudinal
30 supports being attached to the vehicle body across a
corresponding portion of the first concavity, thereby adding
strength to the vehicle body in a longitudinal direction,
each of the longitudinal supports being configured to

receive a corresponding mounting bracket of the fuel cell stack.

5. The vehicle of claim 3, wherein the storage device is a battery, and the nesting relationship between the fuel tank and the battery is defined by a concave portion of the battery disposed along a length of the battery, generally conforming to a convex portion of the fuel tank disposed along a length of the fuel tank.

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6. The vehicle of claim 3, wherein the vehicle body includes a second concavity oriented longitudinally along a length of the vehicle, the second concavity providing a conduit between a front of the vehicle and a rear of the vehicle.

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7. The vehicle of claim 6, wherein the first concavity has a first depth and the second concavity has a second depth larger than the first depth.

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8. The vehicle of claim 6, wherein the first concavity is oriented generally transverse to the vehicle length, and is disposed below a vehicle front seat.

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9. A vehicle having a uni-body construction and configured to efficiently package a fuel cell system, the vehicle comprising:

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a fuel cell system including a fuel cell stack, a fuel tank, and a storage device for storing and providing electricity, the fuel tank and the storage device cooperating in a nesting relationship to minimize vehicle space usage; and

a first concavity formed in a floor of the uni-body, the first concavity being configured to receive the fuel cell stack from outside the vehicle.

5 10. The vehicle of claim 9, wherein the storage device is a battery, and the nesting relationship between the fuel tank and the battery is defined by a concave portion of the battery disposed along a length of the battery, generally conforming to a convex portion of the
10 fuel tank disposed along a length of the fuel tank.

15 11. The vehicle of claim 9, wherein the uni-body includes a second concavity oriented longitudinally along a length of the vehicle, the second concavity providing a conduit between a front of the vehicle and a rear of the vehicle.

20 12. The vehicle of claim 11, wherein the first concavity has a first depth and the second concavity has a second depth larger than the first depth.

25 13. The vehicle of claim 11, wherein the first concavity is oriented generally transverse to the vehicle length, and is disposed below a vehicle front seat.

30 14. The vehicle of claim 13, further comprising a pair of longitudinal supports attached to the uni-body, each of the longitudinal supports being disposed across a corresponding portion of the first concavity, thereby adding strength to the uni-body in a longitudinal direction, each of the longitudinal supports being configured to receive a corresponding mounting bracket of the fuel cell stack.

15. The vehicle of claim 13, further comprising
at least one transverse support disposed on an inside
portion of the uni-body along a length of the first
concavity, thereby adding strength to the uni-body in a
5 transverse direction, the at least one transverse support
being configured to provide an attachment structure for a
corresponding vehicle front seat.

10 16. A method for packaging an energy producing
and storage system in a vehicle, the vehicle including a
vehicle body having a floor with a first concavity formed
therein, the method comprising:

15 placing first and second portions of the
system together in a nesting relationship, thereby
minimizing vehicle space usage; and

18 placing a third portion of the system in the first
concavity from outside the vehicle such that at least some
of the third portion does not extend beyond the vehicle
body.

20 17. The method of claim 16, wherein the vehicle
further includes at least one transverse support disposed
along an inside of the floor along a length of the first
concavity, the method further comprising attaching at least
25 one vehicle front seat to the at least one transverse
support.

30 18. The method of claim 16, wherein the system
includes a fuel cell system, and wherein the first portion
includes a fuel tank, the second portion includes a storage
device for storing and providing electricity, and the third
portion includes a fuel cell stack.

19. The method of claim 18, wherein placing the
first and second portions of the system together in a
nesting relationship includes placing a concave portion of
the battery adjacent a convex portion of the fuel tank, the
5 concave portion of the battery being disposed along a length
of the battery, the convex portion of the fuel tank being
disposed along a length of the fuel tank.

20. The method of claim 18, wherein the vehicle
10 further includes a pair of longitudinal supports attached to
the vehicle body across a corresponding portion of the first
concavity, and the fuel cell includes at least one mounting
bracket, the method further comprising attaching the at
least one fuel cell mounting bracket to a corresponding
15 longitudinal support.